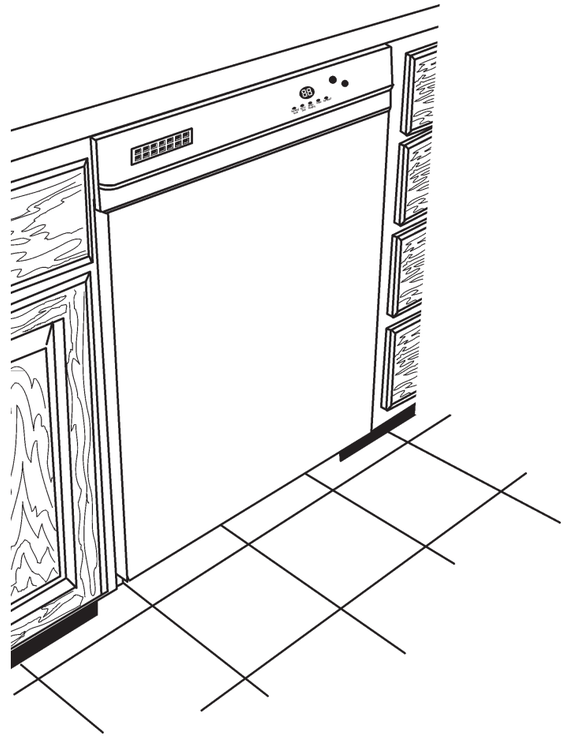
KAD-7

KitchenAid

TECHNICAL EDUCATION



KUD01
STAINLESS STEEL
DISHWASHER

JOB AID 4317288

KitchenAid Inc.

For the way it's made.™

INTRODUCTION

This Job Aid, *KUD01 STAINLESS STEEL DISHWASHERS*, Part No. 4317288 provides specific information on the operation, diagnosis and repair of the KitchenAid KUD01 series Stainless Steel Dishwasher.

KUD01 STAINLESS STEEL DISHWASHERS has been compiled to provide the most recent information on design, features, operation, troubleshooting, and repair procedures.

GOALS AND OBJECTIVES

The goal of this Job Aid is to provide detailed information that will enable the service technician to properly diagnose malfunctions and repair the KUD01 Stainless Steel Dishwasher.

The objectives of the Job Aid are:

The service technician will -

- Understand proper safety precautions.
- Successfully troubleshoot and diagnose malfunctions.
- Successfully perform necessary repairs.
- Successfully return the dishwasher to proper operational status.

TO THE INSTRUCTOR/INDEPENDENT STUDENT

This Job Aid is designed to be used with the video tape, *KUD01 STAINLESS STEEL DISHWASHERS,* Part No. 4317287V.

KitchenAid

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-- NOTES --

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SAFETY

WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the dishwasher.

Replace all panels before operating the dishwasher.

Failure to do so can result in death or electrical shock.

WHAT TO DO IF THE DISHWASHER DOOR DOES NOT OPEN

If the door latch assembly is damaged or malfunctions, the dishwasher door may not open. If this occurs, the following procedure will open the dishwasher door and allow repairs to the door latch assembly.

1. Insert an Allen wrench between the countertop and the top of the console in the vicinity of the door latch. *(Fig. 5-1)*

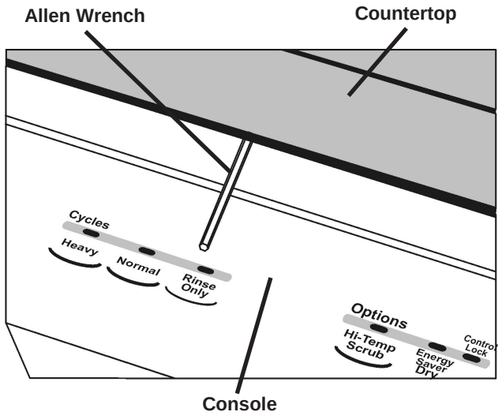


Fig. 5-1

2. Turn the Allen wrench down and press down on the latch strike retainer brackets to release them from the support collar. The latch strike retainer brackets are snapped into the metal ridge on which the cabinet seal is installed. *(Fig. 5-2)*

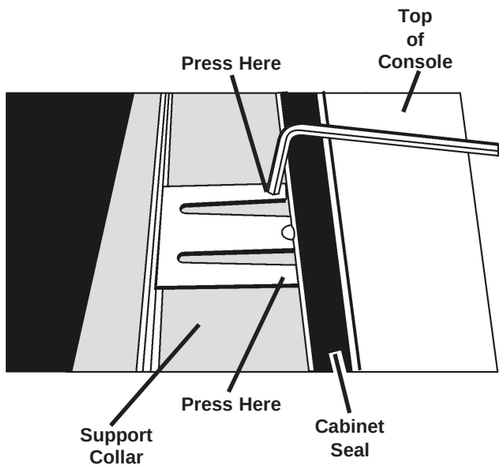


Fig. 5-2

3. Open the door. The unsnapped latch strike will remain attached to the door catch and will be pulled out of the mount ing slots in the support collar. *(Fig. 5-3)*

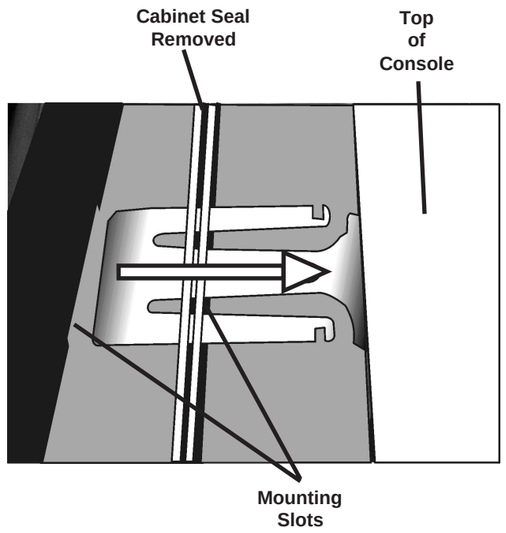


Fig. 5-3

4. Remove the latch strike from the door latch assembly.
5. Repair the door latch assembly.
6. Reinsert the latch strike into the slots in the support collar and snap it into place. *(Fig. 3)*

SPECIFICATIONS

ELECTRICAL SUPPLY: (Under Load) 60Hz, 120VAC

SUPPLY WATER FLOW RATE: (To Fill 2 Quarts (1.9 L) in 27 secs.) - 120psi Max., 20psi MIN.

SUPPLY WATER TEMPERATURE: 120° F to 160° F (49° C to 71° C)

WATER CHARGE: 1.8 Gal. (6.8 L) / First Fill
1.7 Gal. (6.5 L) / All Other Fills

LOWER SPRAY ARM ROTATION: 25 TO 40 RPM
UPPER SPRAY ARM ROTATION: 25 TO 35 RPM

APF DRAIN: .1 Gal. (.38 L) per 5 sec.

APF Pressure Switch Trip Point: 10 In. Water Column

HEATING ELEMENT HEATING RATE: 1°+ F Rise per Minute

WATER USAGE

Baked On Cookware Heavy, Normal

Soil Level Sensed	Water Usage (gal/L)
High	8.8 -10.4/ 33.4 -39.4
Low	6.9/ 26.2

China - Light/China

Soil Level Sensed	Water Usage (gal/L)
High	7.1-8.6/ 26.9-32.5
Low	5.5/ 20.8

Quick Clean Up

First Fill Water Temp	Water Usage (gal/L)
Less than 135° F (57° C)	6.9-8.4/ 26.1-31.8
Greater than 135° F (57° C)	5.2-6.7/ 19.7-25.4

Rinse Only

Water Usage
1.8-2.1/ 6.9-7.9

SECTION ONE
INSTALLATION CONSIDERATIONS

GENERAL CONSIDERATIONS

For complete installation procedures see the "Installation Instructions" in the literature packet provided with the dishwasher.

A video presentation, *Key Features and Installation Considerations*, part number 4317280V, is available. This video covers the entire installation process.

Each location will present a different set of challenges that can be anticipated and solved before installation begins.

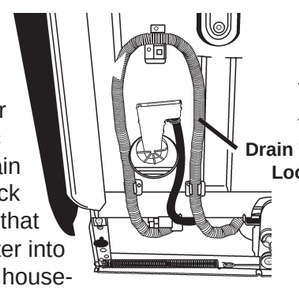
- Check the planned location of the dishwasher.
- Easy access to hot water, drain line and electricity.
- Convenient access for loading. The dishwasher door should open and close freely.
- The opening under the counter should be square and the cabinet fronts should be perpendicular to the floor.
- Make sure the cabinet opening is free of intrusions such as braces or utility lines.
- Do not install the dishwasher on carpeted floors.
- An outside wall behind the dishwasher should be insulated to prevent the water line, inlet valve and drain line from freezing and rupturing.

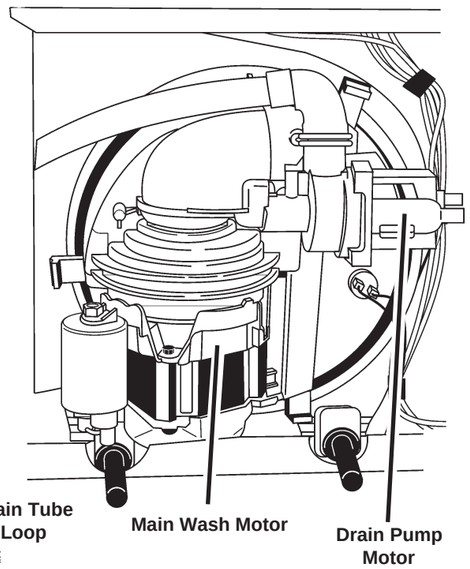
Additional Considerations

The application of a horizontal pump and filter technology allows for the tub to be designed three inches deeper than current models. This deeper tub and longer door design will impact the installation process because there is less working space available underneath the unit and correct routing and placement of the drain hose, water supply and electrical wiring is critical.

The tub must be level. Reduced water consumption of this dishwasher requires that it be installed level and plumb for proper water recirculation back into the sump area during operation.

Do not remove the drain tube from the left side of the tub. If the loop is removed, the dishwasher will not initiate Automatic Purge Filtration. The drain tube also contains a check valve in the L-connector that prevents backflow of water into the dishwasher from the household drain system.





View of Sump Assembly from Underneath Showing Horizontal Wash Pump Motor and Drain Pump Motor

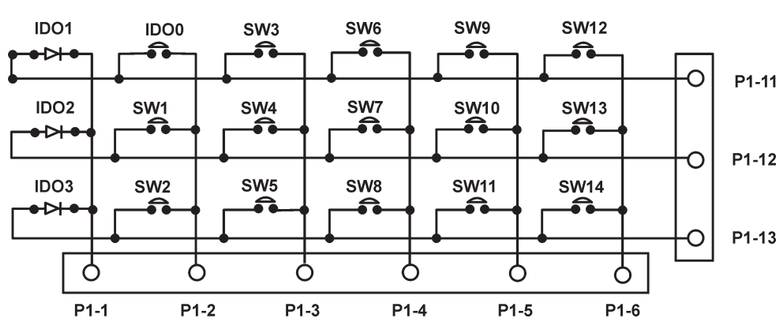
-- NOTES --

MODEL SPECIFIC TABLES

MODEL NO.	USER INTERFACE	JUMPER TAILS	INTERCONNECT CARD	NUMERIC DISPLAY	PUMP & MOTOR ASSMEBLY
KUDS01DJ	8269200 (Top) 8269201 (Front)	8269202	8269207	8269206	8268422
KUDS01IJ	8269199	N/A	N/A	N/A	
KUDR01TJ	8269198				
KUDM01TJ	8269197				
KUDI01TJ	8269196				

MODEL NO.	PRESSURE SWITCH	DISPENSER	RINSE AID SENSOR	RINSE AID HARNESS	WIRING HARNESS
KUDS01DJ	8268477	8269996	8269189	8269190	8269191
KUDS01IJ					
KUDR01TJ			N/A	N/A	
KUDM01TJ	N/A				
KUDI01TJ					

KEYPAD MATRIX



MODEL/SERIAL NUMBER PLATE

SERIAL NUMBER DESIGNATOR

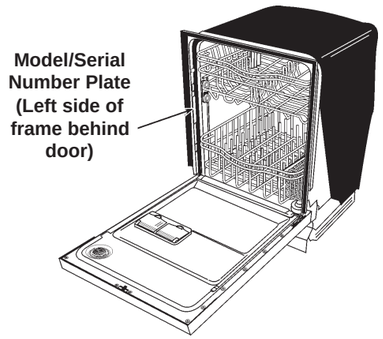
SERIAL NUMBER	F	K	36	50001

MANUFACTURING SITE
F = Findlay, OH

YEAR OF MANUFACTURE
K = 2000

WEEK OF MANUFACTURE

PRODUCT SEQUENCE NUMBER



MODEL NUMBER DESIGNATOR

MODEL NUMBER		K	UD	S	01	T	J	WH	0

INTERNATIONAL SALES OR MARKETING CHANNEL

K = KITCHENAID BRAND

PRODUCT IDENTIFIER
PD = Convertable/Potable UD = Undercounter

FEATURE LEVEL: I, J, M, P, R, S

SERIES CONFIGURATION

FEATURES

YEAR OF INTRODUCTION
J = 2000

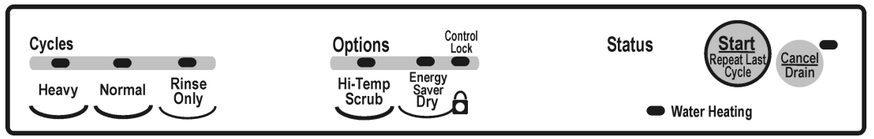
COLOR CODE
WH = White GR = Graphite BT = Biscuit
AL = Almond BL = Black

ENGINEERING CHANGE
0 = Basic Release; 1 = First Revision; 2 = Second Revision

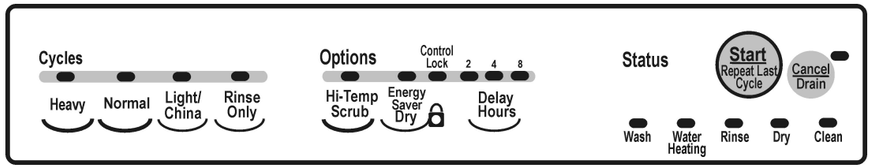
SECTION TWO
THEORY OF OPERATION

CONTROL PANELS

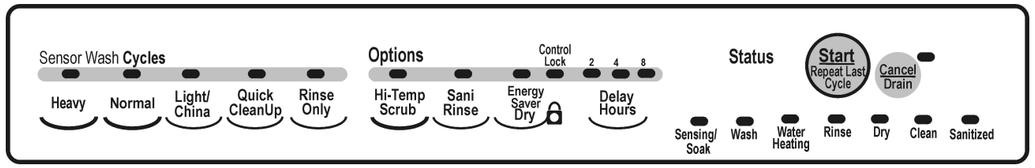
MODEL KUDI01TJ - 6” Console



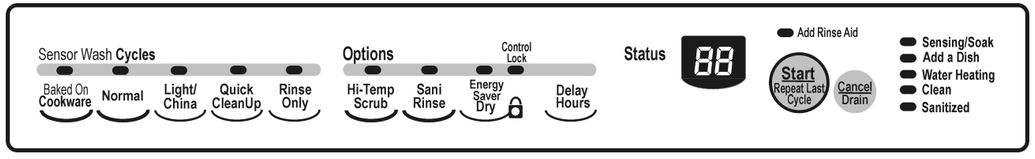
MODEL KUDM01TJ - 6” Console



MODEL KUDR01TJ - 4” Console

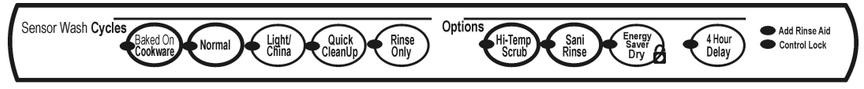


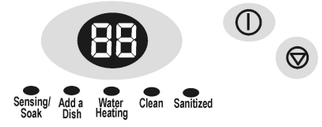
MODEL KUDS01IJ - 4” Console



MODEL KUDS01DJ - 4” Split Console

TOP





FRONT

CYCLES AND CYCLE VARIATION

The KUD01 dishwasher optimizes washing performance and efficiently uses resources by varying cycle functions and length. The selection of wash options allows the consumer to customize a cycle for optimum washing performance. The soil sensor monitors soils in the wash water and sends input to the electronic control. Generally, if the consumer does not choose a wash option, the electronic control determines which cycle variation should be used.

In models without the soil sensor feature the electronic control automatically uses the Low Soil variation of the cycle unless the customer has chosen the High Temp Scrub option.

Wash Options

- The consumer's selection of a High Temp Scrub wash option mandates a preset long version of a wash cycle. The exception is the Normal cycle. If very little soils are present the electronic control will use the Low Soil cycle variation with the High Temp Scrub option.
- The Sani Rinse option will mandate a higher final rinse temperature. This does not lengthen a cycle except for the time spent in the thermal hold to raise the water temperature to the required 160° F.
- The Energy Saver Dry option merely turns off the heat during the drying function of the cycle.

Soil Sensing

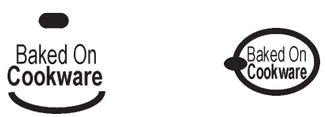
The Soil Sensor (pressure switch) monitors soil concentrations during wash functions and communicates this to the electronic control. If one or more soil sensor trips occur in the first washing interval (interval "42") of the Pre-Wash Period, the electronic control will use the High Soil version of the cycle. If there are no trips and no options selected, the control uses the light soil version starting at interval 41. Soil sensor trips also invoke Automatic Purge Filtration (APF) events during the Pre-Wash and Wash Periods. See APF description on page 5.

First Fill Water Temperature

The duration of the Quick Cleanup cycle may be modified based upon the water temperature of the first fill. If the thermistor senses water temperature of 135°F or higher, the electronic control will eliminate the second wash function. The Quick Cleanup cycle is the only cycle in which this occurs.

Baked On Cookware

The most aggressive to virtually eliminate bacteria from the dish load. Use this cycle for hard-to-clean, heavily soiled pots, pans, casseroles and regular tableware. Initial display time: 99 min.



Heavy

Use this cycle for hard-to-clean, heavily soiled pots, pans, casseroles and regular tableware. Initial display time: 97 min.

Normal

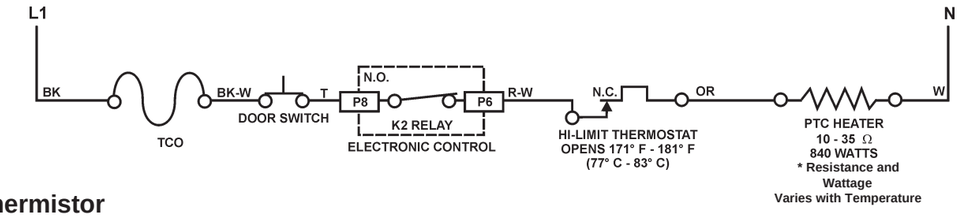
Use this cycle for loads with normal amounts of food soil. (The energy-usage label is based on this cycle.) Initial display time: 95 min.

Light/China

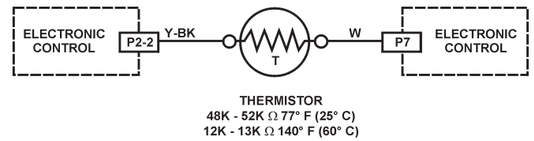
Use this cycle for china and crystal. This cycle uses a light wash and gentle dry. During heated dry, the heating element cycles on and off. Initial display time: 79 min.

WATER HEATING

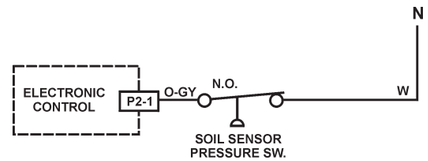
Heater Circuit



Thermistor

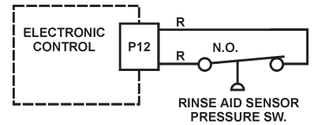


SOIL SENSING



NOTE: Switch closes when significant soils accumulate in the pump.

RINSE AID SENSING



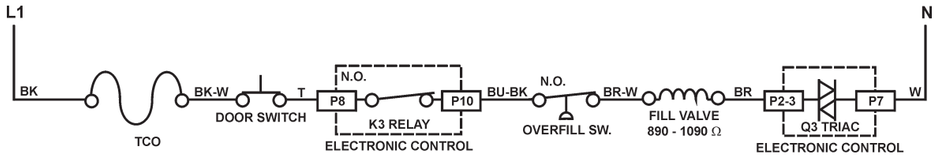
NOTE: Switch closes when the Rinse Aid dispenser is empty.

ELECTRONIC CONTROL CONNECTOR PINS

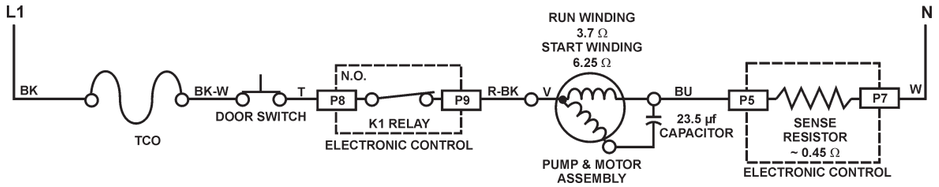
PIN NO.	DESCRIPTION	WIRE COLOR
P1	RIBBON CABLE TO USER INTERFACE	-
P2-1	PRESSURE SWITCH (SOIL SENSE)	O-GY
P2-2	THERMISTOR	Y-BK
P2-3	FILL VALVE	BR
P2-4	DISPENSER	LBU
P2-5	OPEN	O-BK
P2-6	TO CONTROL POWER SUPPLY	T
P3	DRAIN MOTOR	GY
P4	WASH MOTOR AUX WINDING	Y
P5	WASH MOTOR RUN WINDING	BU
P6	SWITCHED L1 TO HEATER	W-R
P7	AC NEUTRAL	W-V
P8	SWITCHED L1 FROM TCO	T
P9	SWITCHED L1 TO WASH MOTOR COMMON	R-BK
P10	SWITCHED L1 TO VENT, FILL VALVE, DISPENSER & PRESSURE SWITCH	BU-BK
P12	OPTIONAL RINSE AID	R

STRIP CIRCUITS

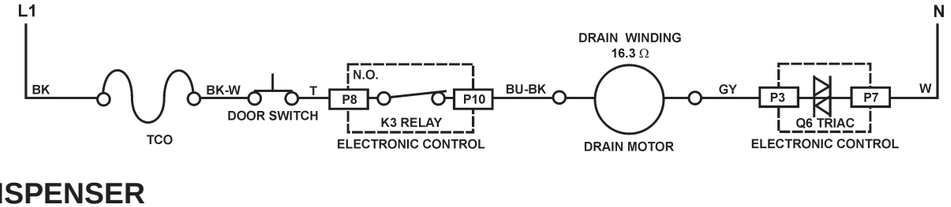
FILL



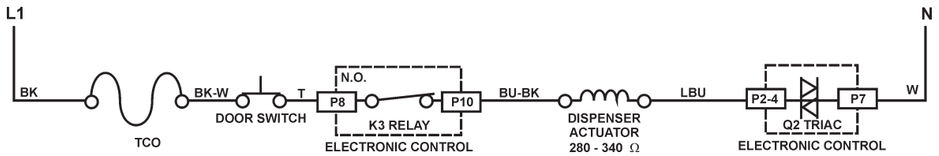
WASH/RINSE



DRAIN



DISPENSER



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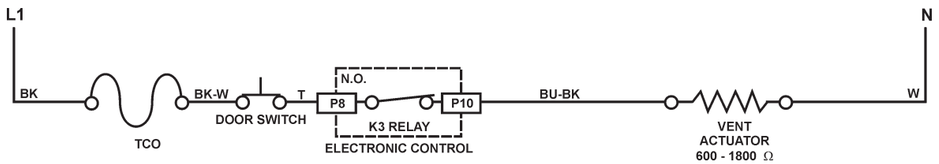
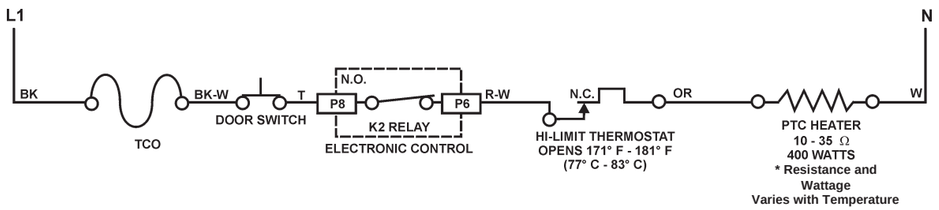


HEAT DRY



Quick Clean Up

Use this cycle for pre-rinsed or lightly-soiled loads. The cycle automatically adds a fill and brief pre-wash, purging cold water from the hot water line improves washing results, without adding time for water heating periods. Initial display time: 48 min.

Rinse Only

Use this rinse cycle for rinsing dishes, glasses and silverware that will not be washed right away. Initial display time: 10 min.

AUTOMATIC PURGE FILTRATION (APF)

The soil sensor (pressure switch) monitors water pressure at the output of the drain pump. The pressure is created by the concentration of soils trapped against the accumulator screen. As pressure builds, the water level in the drain tube loop is pushed higher. When the water level in the tube rises 10 inches (the equivalent of 10 inches of water column pressure) the soil sensor switch closes indicating to the electronic control that high soil levels are present.

The electronic control invokes the APF feature in specific intervals of the Pre-Wash and Wash periods. Up to five intervals are available to enable APF events. As many as three APF events may occur in any one of these intervals, however, APF events will be spaced no less than one minute apart.

APF operates for a total of 10 seconds while the wash motor continues to operate. The accumulator screen will be cleaned from jets on the underside of the lower spray arm as the washing action continues.

During the first five seconds, the drain motor turns on and the fill valve is activated. This purges the soiled water from the accumulator and begins to add fresh water. For the remaining five seconds, the drain pump is turned off, but the fill valve remains activated to bring the wash water back to the proper level.

CANCELING A CYCLE

Anytime during a cycle press:

The display shows:

The dishwasher starts a two minute drain (if needed.) The wash pump does not operate during this drain function. Let the dishwasher drain completely. The display turns off after two minutes.

NOTE: If the dishwasher does not need to be drained, the display turns off.

To Stop the Drain

Press Cancel/Drain a second time to stop the drain immediately. Always drain the dishwasher before starting a new cycle.

To Clear the Indicators

Press Cancel/Drain before starting the dishwasher to clear all options and cycles.

CHANGING A CYCLE

During the first fill of a cycle:

1. Press a new cycle and/or options.
2. Check the detergent dispensers. They must be filled properly for the new cycle.

After the first fill of a cycle:

1. Press:

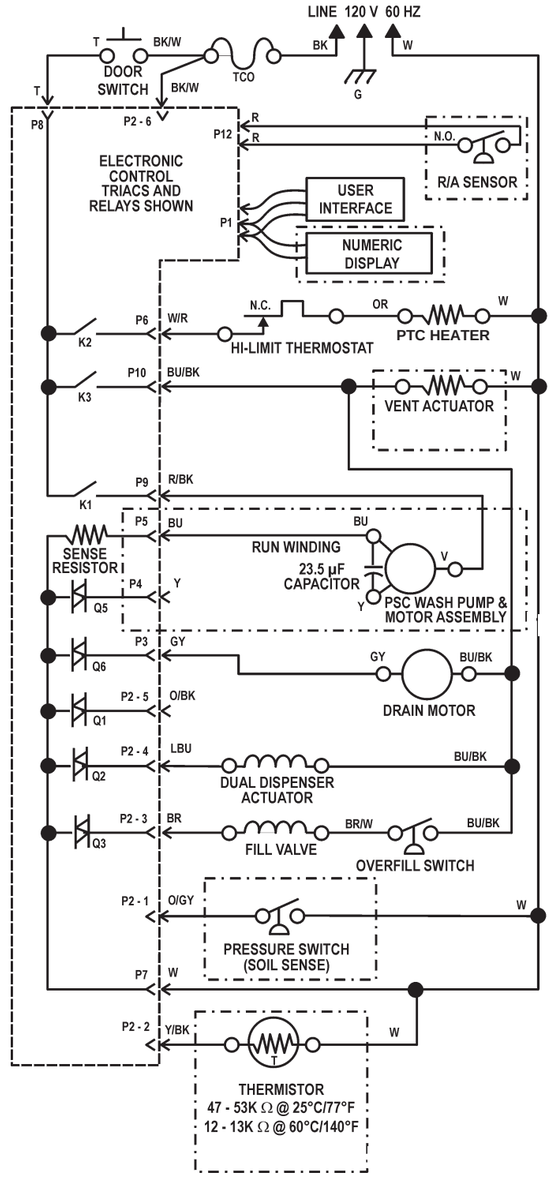
The display shows:

The dishwasher starts a two minute drain (if needed.) Let the dishwasher drain completely. The display turns off after two minutes.

NOTE: If the dishwasher does not need to be drained, the display turns off.

SECTION FIVE
TECH TIPS

WIRING DIAGRAM



NOTE: Check Strip Circuits for resistance and wattage values.

-- NOTES --

2. Check the detergent dispensers. They must be filled properly for the new cycle.
3. Close the door.
4. Press a new cycle and/or options.
5. Press Start.

OPTION SELECTIONS

Hi Temp Scrub

Select this option to increase the target water temperature during the wash portion of the cycle. Hi Temp Scrub raises this target water temperature to 145° F (63° C) in the Main Wash for all cycles. In the Baked On Cookware and Heavy cycles, Hi Temp Scrub also raises the target water temperature to 135° F (57° C) in the pre-wash. Heating the water helps improve washing results. Hi Temp Scrub is useful when loads contain baked-on food.

This option adds heat and wash time by adding at least one additional rinse mode to the cycle.

NOTE: Hi Temp Scrub is an option with Baked On Cookware, Heavy and Normal Wash.

Sani Rinse

Select this option to raise the water temperature in the final rinse to approximately 160° F (70° C) for 10 minutes. Sani rinse adds heat and time to the cycle. In the Normal cycle, this high temperature rinse sanitizes the dishes and glassware in accordance with the NSF International requirements (#95/480/05/2480).

NOTE: The Baked On Cookware cycle automatically uses this option. Sani Rinse is an option with Heavy and Normal Wash.

Energy Saver Dry

Select this energy-saving option to dry without heat. Air drying is useful when loads contain plastic dinnerware that may be sensitive to high temperatures. The dishes take longer to dry and spotting can occur. For best drying, use a liquid rinse aid. Some items, such as plastics, may need towel drying.

NOTE: Energy Saver Dry is an option with all cycles, except Quick Rinse.

Control Lock

Use the Control Lock to prevent the dishwasher from accidentally being turned on. Use the Lock, also, to prevent accidental cycle or option changes during a cycle. When the Lock On Icon is lit, all buttons are disabled.

NOTES:

- The dishwasher door can be opened while the controls are locked.
- The lock can be turned on while the dishwasher is running.

To Turn on the Control Lock:

Press and hold the Air Dry button for four (4) seconds. CONTROL LOCK will glow.

Delay Hours

Select this option to run the dishwasher at a later time or during off-peak hours. Items can be added any time during the delay countdown. After adding hours, close the door firmly until it latches. The delay countdown will not continue if the door is not latched.

- Start can be delayed up to 12 or 24 hours depending on the model.
- The first time Delay Hours is pressed, the display will show:

Showing a one (1) hour delay.

To Delay the Start:

1. Close the door.
2. Select a wash cycle and options.
3. Repeatedly press:

until the desired hours of delay are in the display.

4. Press Start.

NOTE: To cancel the delay hours cycle press Cancel/Drain. To cancel the delay and start the cycle immediately, press Start again.

Diagnostic Cycle Time Chart

INTERVAL	88	10	9	8	7	6	5	4	3	2	1	0
CYCLE LED's												
ANTI-BACTERIA / COOKWARE	■											S
POTS & PANS / HEAVY	■											T
NORMAL	■	■	■			■	■			■	■	A
CHINA	■											N
QUICK CLEANUP / TIME SAVER	■											D
RINSE ONLY	■			■	■			■	■			B
CANCEL DRAIN	■											Y
OPTION LED's												
P.SCOUR / H.T.SCRUB	■											
SOAK OPTION	■											
NO HEAT DRY / AIR DRY/ E.SVR.DRY	■											
SANI RINSE	■											
DELAY - 2 HR	■											
DELAY - 4 HR	■											
DELAY - 8 HR	■											
RINSE AID EMPTY NOTE 1	■											
LOCKOUT	■											
CYCLE PROG/STATUS LED's												
W1	■											S
W2	■											T
WASHING (W3)	■				■		■					A
R1	■											N
CIRC (R2) [a.k.a. 'WASHING' on some models]	■				■		■		■		■	D
RINSING	■								■		■	B
DRYING	■		■									Y
SOAKING	■											
SOAKING/SENSING	■								■			
ADD-A-DISH	■											
WATER HEATING	■	■										
SANI COMPLETE	■											
CLEAN NOTE 2	■											
INTERVAL TIME (min:sec)	**0:03**	**0:05**	**0:02**	**0:05**	**0:10**	**0:02**	**0:05**	**0:02**	**1:00**	**1:00**	**1:00**	
DIAG. CYCLE (Soil Sensor Pres. Sw. Closed) NOTE 3	■	■	■	■	■	■	■	■	→	■		
DIAG. CYCLE (Soil Sensor Pres. Sw. Open) NOTE 3	■	■	■	■	■	■	■	■	■	■		
NUMERIC DISPLAY (DISPLAYS INTERVAL NUMBER)	**88**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
OUTPUT LOADS												
VENT				■	■	■	■	■	■	■	■	S
WASH MOTOR MAIN									■	■		T
DRAIN MOTOR										■	■	A
FILL VALVE					■							N
UNDEFINED EXTRA OUTPUT				■								D
DET-R/A DISPENSER							■					B
HEATER		■										Y

NOTE 3

RAPID ADVANCE SERVICE FEATURE AND DIAGNOSTICS CYCLES

Pressing the following option keys in the sequence shown will either start the Diagnostics Cycle or turn on the Rapid Advance feature for stepping through customer selectable cycles:

HIGH TEMP SCRUB, ENERGY SAVER DRY, HIGH TEMP SCRUB, ENERGY SAVER DRY
Or
SANI RINSE, ENERGY SAVER DRY, SANI RINSE, ENERGY SAVER DRY

(Note: HIGH TEMP SCRUB = POWER SCOUR = HIGH TEMP SCOUR)
(Note: AIR DRY = NO HEAT DRY = ENERGY SAVER DRY)

If *the above key sequence is entered after starting a cycle*, the Rapid Advance feature is turned on, which allows the operator to manually advance the currently running cycle, interval by interval, by pressing the Pots & Pans/Heavy or Anti-Bacteria/Baked On Cookware or Start key.

If *the above key sequence is entered with the dishwasher in Standby*, the Diagnostics Cycle is started. The Diagnostics Cycle can be rapid-advanced, interval by interval, by pressing the Pots & Pans/ Heavy or Anti-Bacteria/Baked On Cookware or Start key.

NOTE: The door must be closed before the Diagnostics cycle will run. Likewise, the door must be closed after each rapid advance selection of the Pots & Pans/Heavy or Anti-Bacterial/Baked On Cookware key for the control to advance to the next interval of the Diagnostics or currently running cycle.

DIAGNOSTICS CYCLE TIME CHART NOTES

(DIAGNOSTICS CYCLE) NOTE 1 – R/A SENSOR ASSEMBLY CHECK

To help detect a malfuntioning or disconnected Rinse Aid level sensor, the Rinse Aid Empty LED should light up in Diagnostics if the Rinse Aid dispenser is empty or the circuit is shorted. If the Rinse Aid Dispenser is full, the LED indicator will not light up during the diagnostic test, except in the first increment.

(DIAGNOSTICS CYCLE) NOTE 2 – THERMISTOR OPEN/SHORT DETECTION

The Diagnostics Test cycle will illuminate the 'CLEAN' LED in intervals 10 through 1 whenever it detects a "short circuit" or "open circuit" in the themistor circuit.

NOTE: Warm water must be in the dishwasher when performing this test. Otherwise, the control may falsely determine that the thermistor circuit is "open".

(DIAGNOSTICS CYCLE) NOTE 3 – STUCK PRESSURE SWITCH DETECTION

The Diagnostics cycle monitors the (normally open) soil-sensing pressure switch input for a "stuck closed" condition. If a "stuck closed" condition exists, the diagnostic cycle will abort wash interval 3 and skip immediately to drain interval 1.

CYCLE STATUS INDICATORS

The progress of the dishwashing cycle can be followed with the Cycle Status Indicators.

Add Rinse Aid

When the RINSE AID EMPTY indicator is lit, the dispenser is empty and needs to be filled. The light will glow when a cycle is selected or while a cycle is running.

Sensing/Soak

On models equipped with a soil sensing pressure switch, the dishwasher senses the soil level on the dishes. Soil level determines the length of some cycles, the amount of heat added to the wash or rinse and the cycle variation needed for the load. Wash action continues while sensing occurs.

Soak helps loosen soils on the dishes, but wash action pauses during soak. The sensing indicator glows during the soil sensing and soak parts of the cycle. .

Sanitized

If the Sani Rinse option is selected, the sanitized indicator glows when the Sani Rinse cycle is finished. If the dishwasher did not properly sanitize the dishes, the light flashes at the end of the cycle. This can happen if the cycle is interrupted. The light goes off when the door in opened.

Clean

The Clean indicator glows when a cycle is finished. The light turns off when the door is opened or Cancel/Drain is pressed.

Add A Dish

After a cycle starts, additional items can be added to the wash load while ADD A DISH indicator glows. After the indicator light turns off, items added to the dishwasher may not be completely cleaned.

Water Heating

Water Heating indicator glows and the cycle progression pauses whenever water is heated to a set temperature during a cycle. Wash or rinse action continues as the water heats.

Wash

The Wash indicator glows whenever the dishwasher is performing a wash function.

Rinse

The Rinse indicator glows whenever the dishwasher is performing a rinse function.

Dry

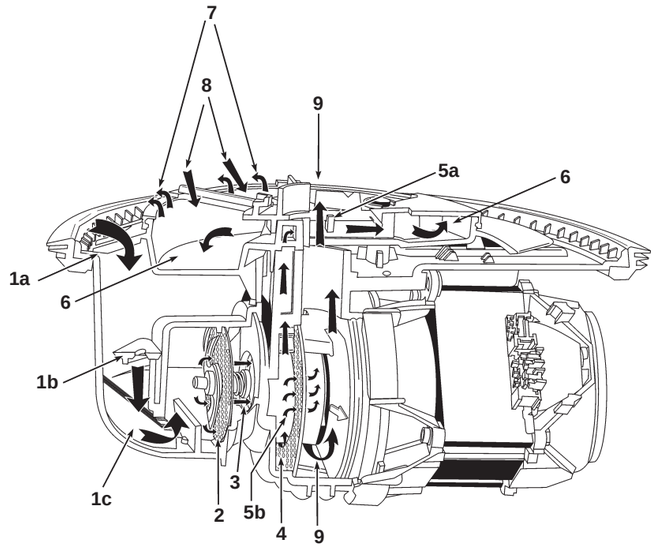
The Dry indicator will glow whenever the dishwasher is performing a heated dry function.

Control Lock

The Control Lock indicator glows whenever the Control Lock feature is on. When the Control Lock indicator is lit, all buttons are disabled.

FUNCTION DESCRIPTION

The washing action of the KitchenAid KUD01 Stainless Steel Dishwasher performs more work and maintains higher performance with reduced energy consumption. This is accomplished with the following: 1) A redesigned wash system using separate wash and drain pumps. 2) A soil sensor and thermistor which monitor washing conditions. 3) An electronic control board which adjusts cycle functions to optimize washing performance.



Wash/Rinse Function

The main wash water passes from the spray arm nozzles, over the dish load and into the sump assembly, where a number of operations occur.

1. Water and soils pass through the course protection grate at the top of the sump assembly **(1a)** and then passes through the foreign object protector **(1b)** into the main wash pump inlet chamber **(1c)**.
2. The water then passes through the chopper assembly where food particles are reduced in size so they can pass through the water delivery system. **(2)**
3. Water is drawn through the impeller and into the pump chamber. **(3)**
4. Here, 20 percent of the water is diverted towards the soil accumulator. Food soils in this water stream are separated by the separation screen. **(4)**
5. Downstream restrictions limit the water flow into the accumulator to 10 percent. **(5a)** The remaining water is allowed to rejoin the main wash flow by passing through the separation screen. **(5b)**
6. This heavily soiled water is distributed throughout the accumulator. **(6)** Soils will remain trapped in the accumulator until a drain or Automatic Purge Filtration event takes place.
7. Since the water in the accumulator is under some minimal pressure, it rejoins the main wash water by flowing through the accumulator screen into the tub. **(7)** For this to occur properly it is critical that the dishwasher be installed perfectly level.
8. Jets located on the underside of the lower spray arm continuously wash down the accumulator screen to allow more soils to concentrate. **(8)**
9. The remaining 80 percent of the wash water will flow from the impeller through the volute and up through the spray arms. **(9)**

NOTE 9 - SOAKING PAUSE INTERVAL — ENERGY STAR NORMAL CYCLE ONLY

Intervals 13 and 32 are mid-cycle soaking/pause intervals and are only used in the Energy Star light soil/non-sensor version of the Normal cycle. The control stops washing and turns all loads off except the vent in these intervals. The intent is to let the existing energy in the wash water on the dishes soften and loosen the food soil. The Soaking and Soaking/Sensing indicators are turned on during these intervals (see note 7).

NOTE 10 – PULSED DRY — CHINA CYCLE ONLY

The China cycle (on all models) turns the heater off in intervals 1, 3, and 5 of the dry period to create a gentler “pulsed” dry function.

NOTE 11 – HEATER ON — QUICK CLEANUP/TIME SAVER CYCLE ONLY

To make up for no water heating thermal holds, the heater is turned on in intervals 10-12, 14, and 41-42 of the Quick Clean Up/Time Saver cycle. The heater in interval 10 of the Quick Clean Up/Time Saver cycle is thermally capped at 150F/66C (see note 4).

NOTE 14 – POWER SCOUR/HIGH TEMP SCRUB OPTION

The Power Scour/High Temp Scrub option is not allowed with China, Quick Clean Up/Time Saver, or Rinse Only/Quick Rinse cycles. This option does the following:

(a) Anti-Bacteria/Cookware and Pots & Pans/Heavy cycles
- Forces the control to run no less than a 5-fill (Wash-Wash-Rinse-Rinse-Rinse-Dry) version of the cycle, even if no soil is sensed.
- Raises the pre-wash water heating thermal hold (interval 40) to 135F/57C
- Raises the main wash water heating thermal hold (interval 33) to 145F/63C (except Anti-Bacteria/Cookware cycle, which is already 145F/63C).

(b) Normal cycles
- Forces the control to run no less than a 4-fill (Wash-Wash-Rinse-Rinse-Dry) version of the cycle even if no soil is sensed. Note: the standard (non-Energy Star) Normal cycle is al ready a minimum of 4-fills (Wash-Wash-Rinse-Rinse-Dry) with light/no soil.
- Raises the main wash water heating thermal hold (interval 33) to 145F/63C.

NOTE 15 – SANI RINSE OPTION

The Sani Rinse option is not allowed on China, Quick Clean Up/Time Saver, and Rinse Only/Quick Rinse cycles. It is “built in” and treated as an automatic option on the Anti-bacteria/Cookware cycles. This option does the following:
- Raises final rinse water heating thermal hold (interval 15) to 160F/71C and adds 20 minutes to its default maximum time limit.
- Turns the heater off in the last two intervals of the dry period (intervals 1 and 2).
- Invokes the Sanitized status indicator at the end of the cycle (see note 8).

NOTE 16 – AIR DRY/NO HEAT DRY/ENERGY SAVER DRY OPTION

The Air Dry/No Heat Dry option is not allowed on the Rinse Only/Quick Rinse cycle (which has no dry function). This option does the following:
- Turns the heater off in the dry period (intervals 1-6).

NOTE 5 - NUMERIC CYCLE TIME DISPLAY

Some models with numeric cycle time displays show an animated spinning clock pattern during the first four intervals of the cycle (intervals 45-42) while sensor based cycle modifications (and true time remaining) are being determined. Other models simply display the worst case cycle time remaining (in minutes) until the end of interval 42. See the Model Specifics Table to identify models with numeric displays and which models exhibit the animated clock pattern. At the end of interval 42, all models with numeric displays will begin displaying a corrected cycle time (in minutes). From here on, the display counts down normally, minute by minute, through the rest of the cycle.

Note: Cycle time does not include time spent in thermal holds; the time on the display at the start of the thermal hold is frozen until the end of the thermal hold (see notes 3 & 6).

NOTE 6 – WATER HEATING (THERMAL HOLD) STATUS INDICATOR

The Water Heating indicator is turned on during all thermal hold intervals to signal that cycle timing, display sequencing, and numeric cycle time display countdown operations have been suspended or frozen while the water is heated to the proper temperature (see note 3).

NOTE 7 – SOAKING/SENSING & SOAKING STATUS INDICATORS

In general, the Soaking/Sensing indicator is primarily a "sensing" indicator and is turned on during cycles whenever the control is still making decisions based on sensor inputs. Specifically this includes all APF intervals, all thermal hold intervals, and the first four intervals of each cycle (see notes 1, 2, and 3).

The Soaking/Sensing indicator also turns on during "soaking" events like the "soaking/pause" intervals in the Energy Star low soil/non-sensor version of the Normal cycle (see note 9). A dedicated Soaking indicator is available for non-numeric models that will likewise turn on during these "soaking" events but not during "sensing" intervals.

NOTE 8 – 'END-OF-CYCLE' STATUS INDICATORS – CLEAN and SANITIZED

Both end-of-cycle indicators (Clean and Sanitized) turn on at the end of a cycle and turn off upon pressing any key or opening and closing the door (note: the indicators stay on as the door is opened but turn off as soon as the door is closed again).

(a) **Clean**

Comes on at the end of every cycle except Rinse Only/Quick Rinse.

(b) **Sanitized**

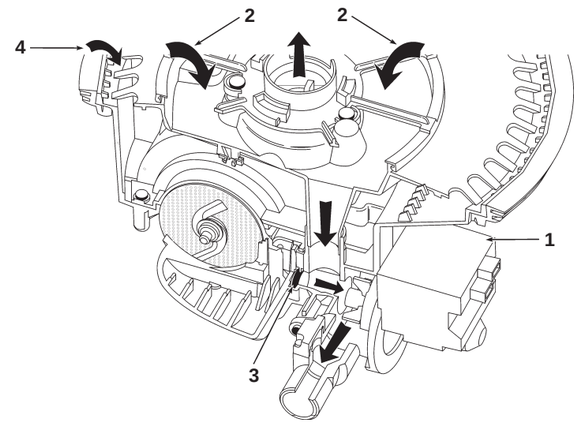
Comes on at the end of all cycles completed with the Sani Rinse option selected (see note 15). If the Sani Rinse option is completed successfully, the indicator is turned on steady at the end of the cycle. If the Sani Rinse was unsuccessful (see below), the indicator will flash ½ second on, ½ second off, repeatedly, at the end of the cycle. The Sani Rinse will be deemed unsuccessful (& flash the indicator) if:

(1) The thermal hold in the final rinse (interval 15) fails to reach the required 160F/71C before timing out on its default time limit.

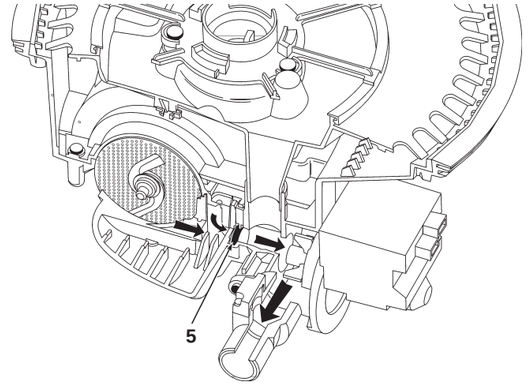
(2) The door is opened and/or power is interrupted between the end of the final rinse thermal hold (interval 15) and the end of the cycle.

Drain Function

1. During the Drain function, a separate drain pump motor **(1)** is started while the main wash pump motor continues to operate for 1 minute. This accomplishes three goals.
2. First, the jets on the underside of the lower spray arm continue to flush soils from the accumulator screen while the water is drained from the unit. **(2)**
3. Second, negative pressure in the main wash pump inlet chamber keeps the check valve closed, allowing the drain pump to remove soiled water from the accumulator. **(3)**
4. Third, the spray arms will rinse down the interior of the wash tub while the water is drained, leaving the inside free of soils. **(4)**



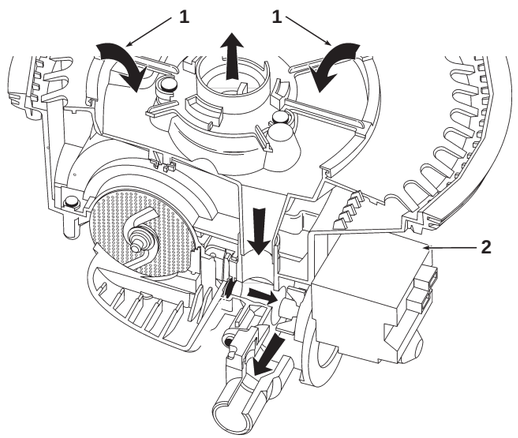
5. The main wash pump then stops, creating positive pressure in the pump's inlet chamber. This opens the check valve allowing the remaining water to be drained away. **(5)**



Automatic Purge Filtration

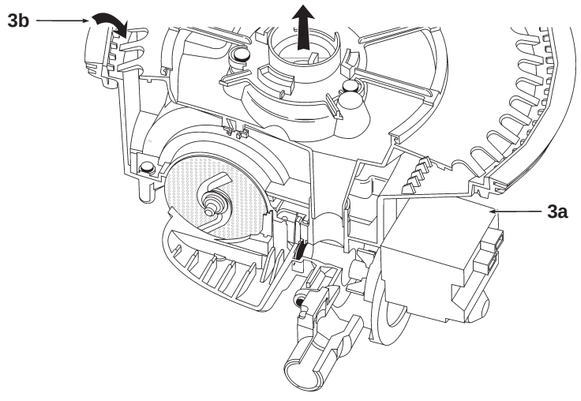
The Automatic Purge Filtration feature may be invoked if the soil sensor detects excessive soils. This can occur during selected wash or rinse functions. APF mode provides one or more purges of excess soils trapped in the soil accumulator at specified intervals in a cycle.

1. The APF mode operates for a total of 10 seconds while the wash pump continues to wash. The accumulator screen will be cleaned from jets on the underside of the lower spray arm. **(1)**
2. During the first five seconds, the drain pump **(2)** turns on and the fill valve is activated. This purges the soiled water from the accumulator and begins to add fresh water.



APF Function
First Five Seconds

3. For the remaining five seconds, the drain pump is turned off, **(3a)** but the fill valve remains activated to bring wash water back to the proper level. **(3b)**



APF Function
Last Five Seconds

NOTE 2 – APF ENABLED INTERVALS

The APF (Automatic Purge Filtration) wash system allows the control to continuously filter and flush food soil out of the pump during “APF enabled” intervals scattered throughout each cycle and do it without interrupting the cycle. The control monitors the pressure switch (soil sensor) input during each of the APF enabled intervals in the cycle (see time chart). Whenever a pressure switch trip is detected in one of these APF intervals, the control executes a 10-second “APF purge” to clear the pump of soils. These APF purges occur in parallel with the cycle and do not interrupt or affect the timing of other functions (like washing) in the interval. Each APF purge consists of 5 seconds of Fill and Drain followed immediately by 5 seconds of Fill by itself. If an APF purge is executed during a heated wash interval, the heater must be turned off during the first 5-second Fill and Drain portion of each purge, but cycle timing is not affected and the heater turns back on midway through the purge.

Multiple APF purges can occur within each APF interval of the cycle but are limited by certain frequency and quantity limits:

- APF purges must be spaced at least 60 seconds apart within any given APF interval (the pressure switch will be ignored prior to 60 seconds).
- The maximum number of APF purges allowed within a given APF interval is specified on the time chart in that interval (the pressure switch will be ignored for the duration of an APF interval once the maximum APF limit for that interval has been exceeded). In interval 33, the limit is “1” for 120F thermal holds and “3” for all other thermal hold setpoint temperatures.

Note: Models without pressure switches (soil sensors) never get sensor trips and thus never execute APF purges. (See Model Specifics Table to identify models without pressure switches).

NOTE 3 – WATER HEATING THERMAL HOLD INTERVALS

During water heating thermal holds (intervals 40, 33, & 15), cycle timing is interrupted and the dishwasher continues washing while it heats the water to the setpoint temperatures specified on the time chart for each version of the cycle. The Water Heating and Sensing indicators are turned on and the cycle time displayed by models with numeric displays is frozen during thermal hold intervals (see notes 5, 6, & 7). The dishwasher will hold in this suspended, water heating mode until the water reaches the temperature specified for the thermal hold or a maximum default time limit for the thermal hold (below) expires. At the conclusion of the thermal hold, the control resumes normal operation and timing and proceeds to the next interval.

The default maximum time limits for all the thermal hold intervals are as follows (in minutes):

	Pre-Wash	Main Wash	Final Rinse	(Final Rinse with Sani Rinse)
Anti-bacteria/Cookware	30	35	50	(50)
Pots & Pans/Heavy	30	35	30	(50)
Normal	—	45	40	(60)
China	—	45	30	(—)

(Quick Clean Up/Time Saver and Quick Rinse/Rinse Only cycles have no thermal hold intervals)

NOTE 4 – THERMALLY CAPPED INTERVALS

Interval 34 is a heated wash interval thermally capped at 150F/66C. Interval 10 is only heated for the Quick Clean Up/Time Saver cycle and is thermally capped in that situation at 150F/66C. Anytime the thermal cap temperature is exceeded during one of these intervals, the heater will turn off, but the dishwasher will continue washing for the duration of the interval.

COMMON CYCLE TIME CHART NOTES

NOTE 1 – CYCLE MODIFICATIONS BASED ON SENSOR INPUTS

The control monitors food soil and temperature sensors during the first four intervals of the cycle (intervals 45-42) to determine what sensor based cycle modifications are appropriate. The modifications made to the cycle depend on the cycle and options selected as well as the sensor inputs. Note the interval skip arrows and thermal hold temperature changes on the time chart for each version of the cycle.

In addition to being able to modify the cycle itself based on soil sensor input, the APF (Automatic Purge Filtration) wash system allows the control to continuously filter and flush food soil out of the pump during “APF enabled” intervals scattered throughout each cycle and do it without interrupting the cycle (see note 2 on APF).

(a) Anti-Bacteria/Cookware, Pots & Pans/Heavy, Normal, and China Cycles

The control assumes that the worst case cycle (the high soil version) is going to be required until the true soil level is determined. The soil level is determined by counting the number of pressure switch (soil sensor) trips that occur in the first APF interval of the cycle (interval 42). If no trips are detected in interval 42, the control modifies the remainder of the cycle to match the light soil/non-sensor version of the cycle. If one or more trips are detected in interval 42, the control continues with the heavy soil version of the cycle.

Note: Energy Star models have a different light soil/non-sensor version of the Normal cycle than other models (see Model Specifics table to identify Energy Star models).

Note: Models without pressure switches (soil sensors) never get sensor trips and thus always default to the light/non-sensor version of the cycle and never execute APF purges. (See Model Specific Tables to identify models without pressure switches).

Note: The Power Scour/High Temp Scrub option can override or alter the soil-based cycle modifications (see note 14).

(b) Time Saver/Quick CleanUp Cycles

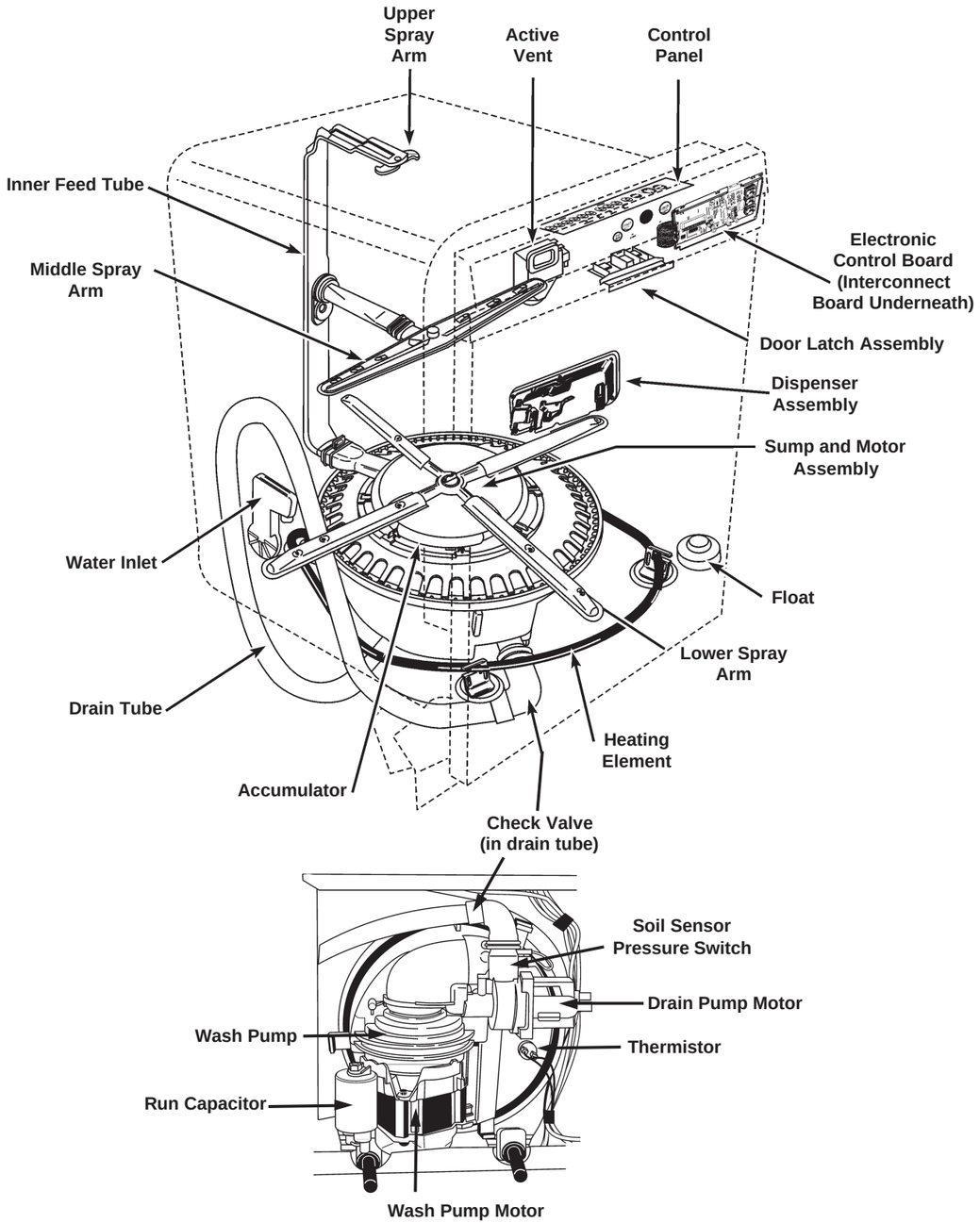
The control does NOT modify the Quick CleanUp/Time Saver cycle based on soil level. Instead, it modifies the cycle based on incoming water temperature detected during the first fill interval of the cycle (interval 45). The control assumes the worst case cycle (Cool First Fill version) will be required until the end of interval 42. At the end of interval 42, it modifies the remainder of the cycle based on the inlet water temperature it actually detected in the first fill. If the water was more than 135° F/57° C it changes to the “Hot First Fill” version of the cycle. If the water was less than 135° F, it will continue with the “Cool First Fill” version of the cycle. The “Cool First Fill” version of the cycle basically contains an extra drain and fill prior to the main wash to increase the initial water temperature for the main wash and reduce the time needed to heat the water.

Like other cycles, the Quick CleanUp/Time Saver cycle does allow APF purges to occur (in APF intervals) if pressure switch trips occur, but cycle timing is not modified.

(c) Rinse Only/Quick Rinse Cycles

The control does NOT modify the Rinse Only/Quick Rinse cycle based on sensor inputs. Like other cycles, it does allow APF purges to occur (in APF intervals) if pressure switch trips occur but the Rinse Only/Quick Rinse cycle timing itself is not modified based on any sensor inputs.

SECTION THREE
COMPONENT ACCESS
COMPONENT LOCATION



⚠ IMPORTANT

Electrostatic Discharge (ESD) Sensitive Electronics

ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

- Use an anti-static wrist strap. Connect wrist strap to green ground connection point or unpainted metal in the appliance. - OR - Touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.
- Before removing the part from its package, touch the anti-static bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contacts; handle electronic control assembly by edges only.
- When repacking failed electronic control assembly in anti-static bag, observe above instructions.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Disconnect power before servicing the dishwasher.

Replace all panels before operating the dishwasher.

Failure to do so can result in death or electrical shock.

ACCESSING COMPONENTS IN THE DOOR

Removing the Console Panel

The control panel on the KitchenAid KUD01 Dishwasher comes in two versions: a) Split Controls: Top and Front Display and b) Front Display. Both control panels are removed in the same manner.

1. Remove the six (6) screws securing the control panel to the door frame. *(Fig. 3-1)*
2. The control panel will now drop down and be free of the door assembly. The wiring harness will remain connected to the console components.

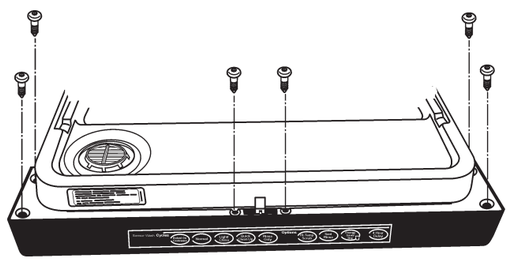


Fig. 3-1

Cycle Progression & Status Indicators-Output Loads

Located in the lower third section of the left column are a listing of cycle Status Indicators (1) signifying what is happening during a cycle. Some of these indicators are for engineering use only and not applicable for service diagnosis (†). The output loads (2) are listed at the bottom of the left hand column. The solid and shaded bars to the right indicate the potential use of cycle indicators and loads by at least one cycle variation. *(Fig. 4-4)*

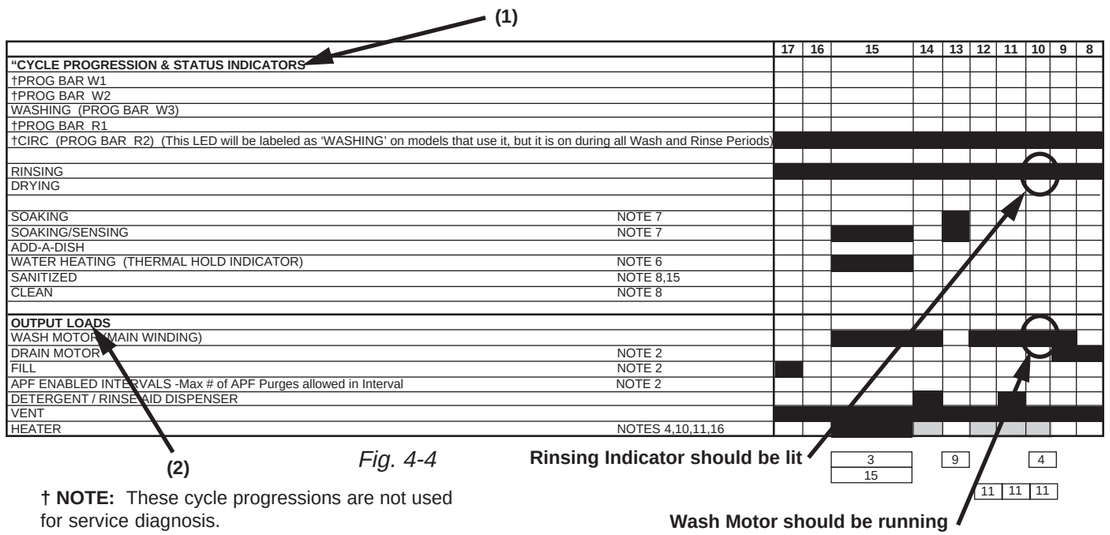


Fig. 4-4

† **NOTE:** These cycle progressions are not used for service diagnosis.

Using the Common Cycle Time Chart

To confirm the correct operation of a cycle or properly diagnose a malfunction, the following information must be determined:

- Does the model have a Soil Sensor?
- What cycle was chosen?
  — If Quick Cleanup cycle was chosen, what was the first fill water temperature?
- What Cycle Option was chosen?

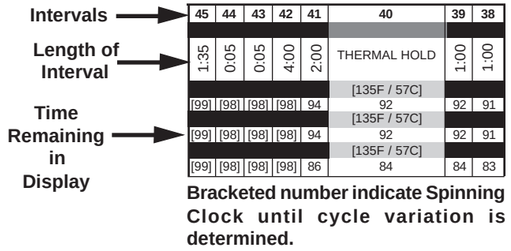
Proceed with the following steps:

1. Start the selected cycle and program the unit for Rapid Advance service feature. (See page 36).
   NOTE: Most likely the cycle that is selected will change to the "Low Soil" variation because of low soil levels. Also, APF events will not occur. to check the APF function, the harness leads to the soil sensor will need to be shorted together. Shoring these lwads tells the electronic control that "High Soil" levels are present.
2. Advance through the intervals to the one that will operate the load or perform the function to be checked.
3. If the load does not operate, refer to the wiring diagram or applicable strip circuit to determine what connections and components to check. (See Section Five - TECH TIPS.)
4. Whenever possible, check components for resistance or continuity. On components where resistance or continuity checks are not reliable, conduct voltage checks.

There are 45 intervals in the Common Cycle Time Chart. Not all intervals have the same time assignments from cycle to cycle. An interval may be only seconds long or up to 20 minutes in length. More than one function can take place during an interval. The LED display, if present, will show the time remaining in the cycle. *(Fig. 4-2)*

Thermal Hold intervals do not show specific time lengths. The length of these intervals is determined by input from the thermistor. *(Fig. 4-3)* If the thermal cap temperature is not reached in a predetermined length of time, the electronic control will proceed to the next interval. (See Note 3, page 33.)

In the same row as the Cycle Name, the shaded or solid bars indicate all possible intervals that may be used in that cycle. All clear intervals are never used. In cycle variation intervals, black bars indicate intervals always used. Gray bars with arrows indicate intervals that are skipped in one or more variations of a cycle. Shaded bars without arrows indicate that the heater may or may not be invoked during thermal holds. (**NOTE:** During APF and drain functions the heater is turned off. This is a UL requirement and is built into the electronic control programming. See Note 2, page 33)



Bracketed number indicate Spinning Clock until cycle variation is determined.

Fig. 4-2

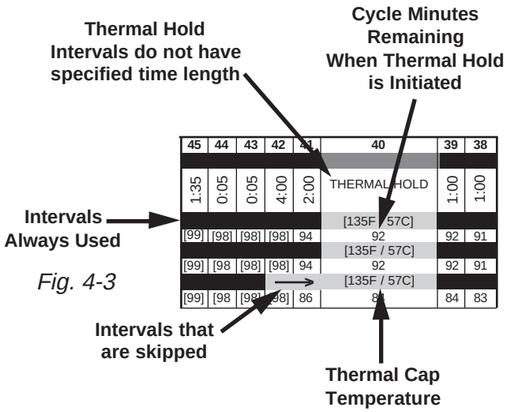


Fig. 4-3

Quick Clean/Time Saver Cycle

The Quick Clean/Timer Saver cycle has a unique variation. During the initial water fill, the thermistor in the sump monitors the incoming water temperature. If it is 135° F (57° C) or above the electronic control will skip intervals 39 through 36. This shortens the wash/rinse time by eliminating a drain and fill sequence (See Note 1b and 1c, page 32).

Removing the Electronic Control Board

The electronic control board on the KitchenAid KUD01 Dishwasher is virtually the same configuration for both the split controls and the full control versions.

ALL MODELS

1. Disconnect the ribbon connector and the wiring harness connectors from the electronic control board.
2. Use a flat bladed screwdriver to depress the holding tabs at the left end of the control board assembly while pulling up. *(Fig. 3-2, Inset)*

SPLIT CONTROL MODELS

3. Once the Electronic Control Board is removed, a ribbon cable interconnect board is exposed. *(Fig. 3-3)*
4. Unsnap the interconnect board from the control panel assembly.
5. Disconnect the three ribbon cables from the interconnect board.

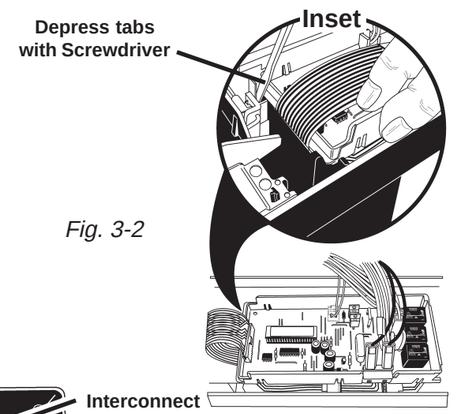


Fig. 3-2

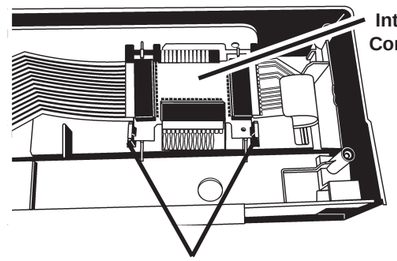


Fig. 3-3

Removing the Door Latch Assembly

The Door Latch Assembly for both the Split Control and Full Control versions are essentially the same assembly. The latch handle is installed in one of two positions and the door microswitch will be located on either the right or left of the assembly depending on the control panel version. Removal of the entire door latch assembly is the same for both versions.

1. Release the tabs securing the door latch assembly to the control panel and lift the assembly out. *(Fig. 3-4, Inset)*

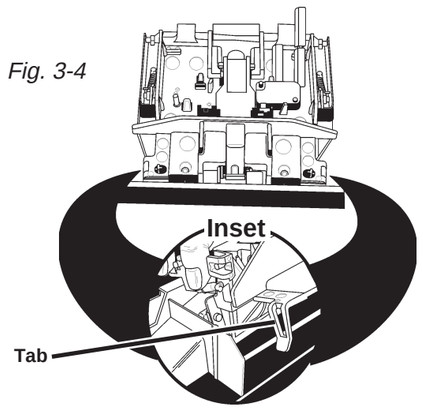


Fig. 3-4

Removing the Door Latch Microswitch

The Microswitch will be located on either the right or left side of the door latch assembly depending on the control panel version.

1. Disconnect the wiring harness connectors from the microswitch terminals.
2. Pull back on the two (2) plastic retaining tabs securing the microswitch to the door latch assembly and lift the microswitch out. *(Fig. 3-5)*

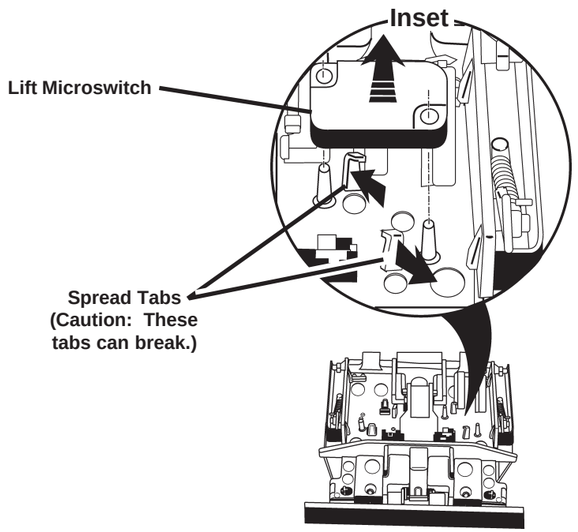


Fig. 3-5

Removing the Active Vent Assembly

The Active Vent Assembly is located in the console area.

1. Remove the six (6) screws securing the control panel to the door frame.
2. Disconnect the wiring harness connectors from the wax motor terminals on the active vent assembly.
3. Loosen, but do not remove the four T-15 Torx screws securing the left side of the outer door panel to the door frame. This will provide addition room to easily remove the active vent assembly.
4. Using a flat bladed screwdriver in the slot provided at the bottom of the interior vent grille, turn the vent grille counterclockwise ¼ turn and remove the grille. *(Fig. 3-6)*
5. The active vent assembly will drop free of the dishwasher door.

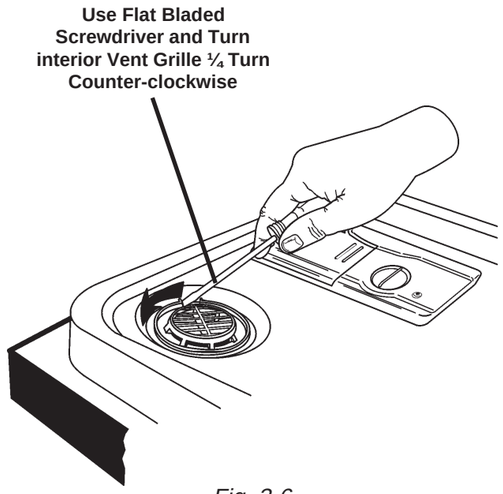


Fig. 3-6

HOW TO USE THE COMMON CYCLE TIME CHART

The Common Cycle Time Chart reproduced on page 27 of this Job Aid can be found on the Tech Sheet supplied with each dishwasher. The Tech Sheet is located behind the access panel at the bottom of the unit.

The Common Cycle Time Chart appears to be more complex than a typical Esterline Chart. This is a result of the greatly expanded number of cycles and cycle variations possible with electronic controls as opposed to previous electro-mechanical controls. The chart reflects all possible cycles/cycle variations available on ALL Year 2000 Stainless Steel Dishwasher models. As a result the chart may list some cycles that will not apply to the specific model being serviced.

Common Cycle Time Chart Layout

The wash cycles are listed on the left side of the chart. Cycle names such as Anti-Bacterial/Baked-On-Cookware may be designated as Anti-Bacterial on some models and Baked-On-Cookware on others. Cycle variations are listed directly underneath each cycle name. These variations are dependent on one or more of the following factors:

- What, if any, wash options were chosen?
- The Soil Sensor detected soil in the water. (**NOTE:** If the Soil Sensor does not trip during a particular cycle, the unit uses the same variation of the cycle that is applicable for non-sensor models.)

In Figure 4-1, gray highlighted cycle variations indicate options the customer can select (Notes 1 & 3, pages 32 & 33). The gray highlighted cycle variation Low Soil - ENERGY STAR is an exception and indicates a unique default cycle for these models (Note 1a, page 32). The unhighlighted cycle variations are based on input from the soil sensor or are defaults based on specific models (Notes 2 & 4, page 33).

Cycle Name →	**NORMAL**		NOTES 1A,9,14B,15,16
	INTERVAL TIME (min:sec)		
Note 1 →	**HIGH SOIL WITH P.SCOUR / H.T.SCRUB OPTION [Soil sensed in Interval 42]**	NOTE 14B	95:00 w/o Th.Holds
	NUMERIC DISPLAY CYCLE TIME (spinning "CLOCK" pattern in INTERVALS 45-42 for some models, see NOTE 5)		
Note 2 →	**HIGH SOIL [Soil sensed in Interval 42]**	NOTE 1A	95:00 w/o Th.Holds
	NUMERIC DISPLAY CYCLE TIME (spinning "CLOCK" pattern in INTERVALS 45-42 for some models, see NOTE 5)		
Note 3 →	**LOW SOIL (or Non-Sensor Model) H.T.SCRUB OPTION [No soil sensed in Interval 42]**	NOTE 14B	87:25 w/o Th.Holds
	NUMERIC DISPLAY CYCLE TIME (spinning "CLOCK" pattern in INTERVALS 45-42 for some models, see NOTE 5)		
Note 4 →	**LOW SOIL (or Non-Sensor Model) [No soil sensed in Interval 42]**	NOTE 1A	87:25 w/o Th.Holds
	NUMERIC DISPLAY CYCLE TIME (spinning "CLOCK" pattern in INTERVALS 45-42 for some models, see NOTE 5)		
Note 5 →	**LOW SOIL (or Non-Sensor Model) [No soil sensed in Interval 42] — E. STAR MODEL**	NOTE 1A	78:20 w/o Th.Holds
	NUMERIC DISPLAY CYCLE TIME (spinning "CLOCK" pattern in INTERVALS 45-42 for some models, see NOTE 5)		

Fig. 4-1

Note 1 - Customer Selected Option, High Soils Sensed

Note 2 - No Option Selected, High Soils Sensed

Note 3 - Customer Selected Option, Cycle Adjusted/ Shortened because no soils were sensed. (This variation only applies to the normal cycle.) Cycle variation may be same as Non-Sensor models.

Note 4 - No Option Selected, Cycle Adjusted/Shortened because no soils were sensed. Cycle variation may be same as Non-Sensor models.

Note 5 - No Option Selected, Cycle Adjusted/Shortened because no soils were sensed. Cycle variation is unique to Energy Star models.

Notes further explain Cycle/Variation Function

Cycle Duration NOT Including Thermal Holds

During Soil Sensing function (Interval 42), the LED display will show spinning "CLOCK" pattern. Clock countdown will begin once the cycle variation has been determined.

-- NOTES --

Removing the Dispenser Assembly

The Dispenser Assembly is located in the lower portion of the dishwasher door below the console area.

1. Remove the eight (8) screws securing the outer door panel to the dishwasher door frame. *(Fig. 3-7)* Remove the outer door panel from the door frame.
2. Remove the center top hex head screw and remove the dispenser shield and disconnect the wiring harness connectors from the detergent dispenser solenoid and rinse aid sensor. *(Fig. 3-8)*
3. Remove the remaining five (5) screws securing the dispenser assembly to the inner door liner. *(Fig. 3-8)*
4. Bend the two locking tabs at the top and bottom of the dispenser assembly up away from the dispenser body.
5. The dispenser assembly can now be lifted from the inner door liner.

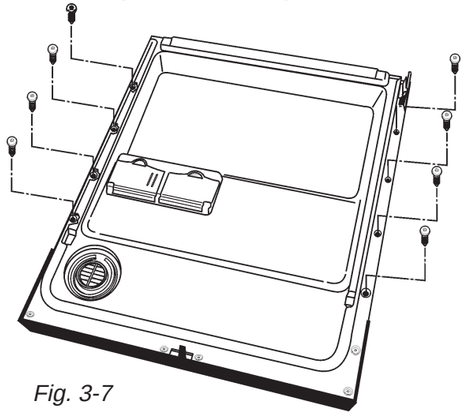


Fig. 3-7

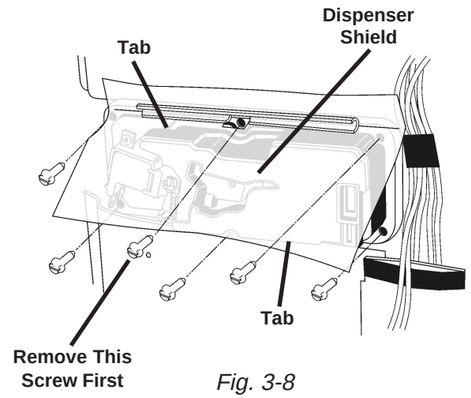


Fig. 3-8

SERVICING COMPONENTS INSIDE THE TUB

Removing the Inner Feed Tube and Lower Spray Arm

The Inner Feed Tube is held in place by two (2) metal clips. *(Fig. 3-9)* One is located on the inner top of the dishwasher tub. The second is located on the back of the dishwasher tub. *(Fig. 3-10, Inset)*

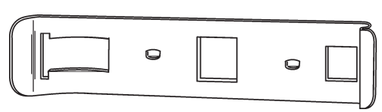


Fig. 3-9

1. Remove the two (2) dishracks from the dishwasher tub.
2. Unsnap the inner feed tube from the two (2) metal clips securing it to the dishwasher tub.

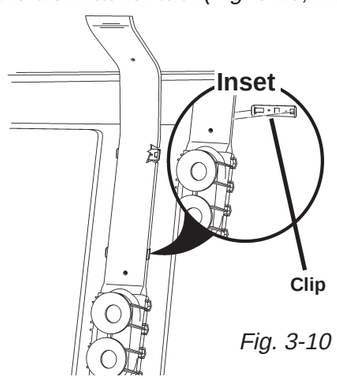


Fig. 3-10

3. Rotate the rear feed cap *(Fig. 3-11a)* ¼ turn clockwise *(Fig. 3-11b)*

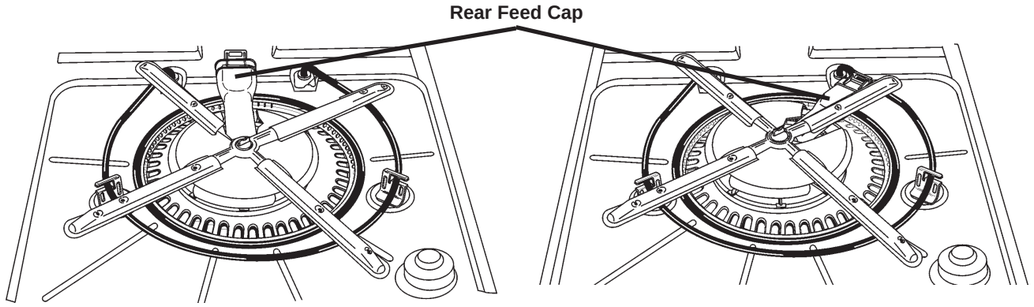


Fig. 3-11a

Fig. 3-11b

4. The entire inner water tube assembly and the lower spray arm assembly can now be removed from the dishwasher tub.

Removing the Water Inlet

The water inlet is located on the left side of the dishwasher tub. *(Fig. 3-12)*

1. From the inside of the tub, use a small pair of Channel Locks™ and turn the inlet grille ¼ turn counterclockwise and remove the grille. *(Fig. 3-13)*
2. The water inlet can now be separated from the dishwasher tub.

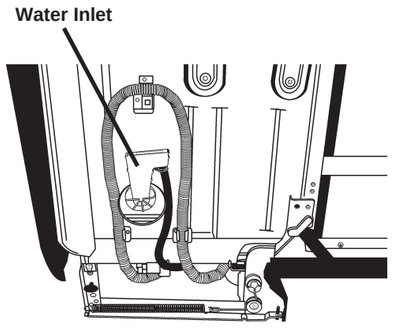


Fig. 3-12

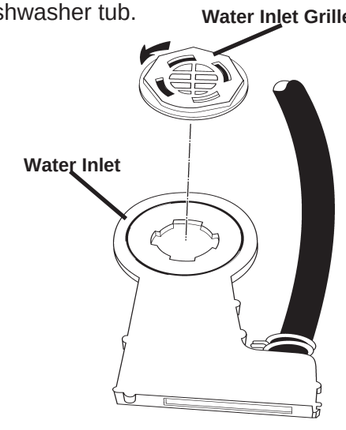


Fig. 3-13

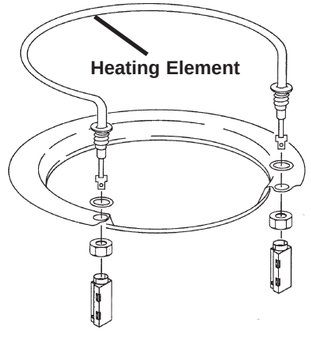
Servicing the Heating Element

The heating element *(Fig. 3-14)* should not be removed unless it has failed. All critical components of the dishwasher can be removed without removing the heating element.

If the heating element must be removed, it must be replaced with a new one.

When installing a new heating element, follow the Installation Instructions provided with the new item.

Fig. 3-14



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11 X 17

-- NOTES --

Servicing the Overfill Assembly

Removing the Overfill Control Switch

The overfill control switch can be removed from the overfill assembly without removing the assembly from the tub.

1. Remove the toe and access panels from the bottom of the dishwasher.
2. Unsnap the cover over the overfill control switch.
3. Lift the overfill control switch from the assembly.
4. Disconnect the wiring harness connectors from the switch terminals.

Removing the Overfill Assembly

1. Remove the toe and access panels from the bottom of the dishwasher.
2. Tip the float slightly and gently toward the back of the tub and lift up to disengage it from the overfill assembly body. *(Fig. 3-15)*
3. Remove the standpipe nut.
4. Push the overfill assembly through the bottom of the tub.
5. Open the cover and lift the overfill control switch from the assembly.
6. Disconnect the wiring harness connectors from the switch terminals.

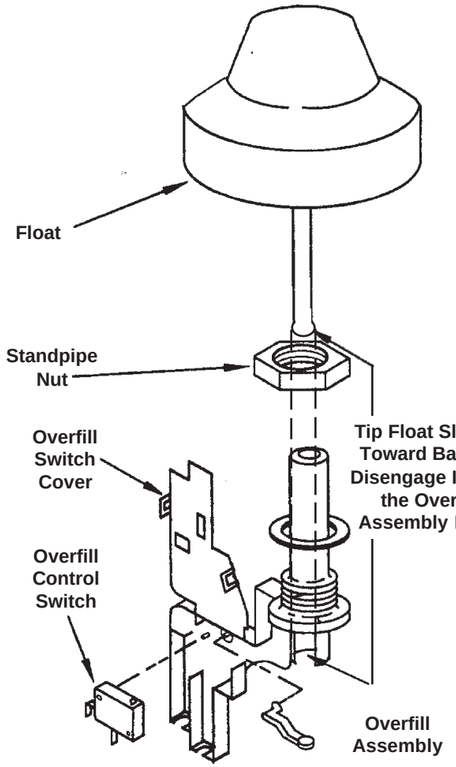

Fig. 3-15

SERVICING THE SUMP ASSEMBLY

Removing the Sump Assembly

The entire sump assembly can be removed from inside the dishwasher tub.

1. Remove the access and toe panels from underneath the dishwasher door by removing the two (2) screws securing it to the dishwasher frame. *(Fig. 3-16)*
2. Disconnect the wiring harness connectors from the drain pump motor terminals, the soil sensor and the thermistor.
3. Disconnect the drain tube from the soil sensor (if present) on the drain pump outlet.
4. Remove the soil sensor, if present. (See procedure below.)
5. Remove the drain pump motor. (See procedure below.)
6. Remove the three (3) sump tabs that secure the sump assembly to the dishwasher tub. *(Fig. 3-17, Inset)*
7. From inside the tub, lift the back of the sump up approximately ½ inch. Push the assembly back, lift up the front and then lift it out.

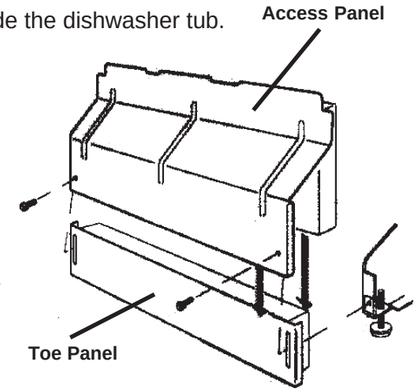

Fig. 3-16

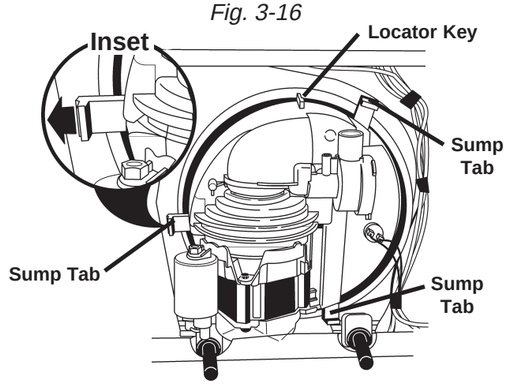

Fig. 3-17

NOTE: When reinstalling the sump assembly, align the locator key with the corresponding slot in the tub opening. *(Fig. 3-17)*

Removing the Soil Sensor

If so equipped, a soil sensing pressure switch is mounted on the drain pump outlet. Disconnect the two wiring harness connectors from the switch terminals. Disconnect the drain tube. *(Fig. 3-18A)* Remove the Torx T-15 screw securing sensor assembly to the pump base. Lift it from the pump outlet. *(Fig. 3-18B)*

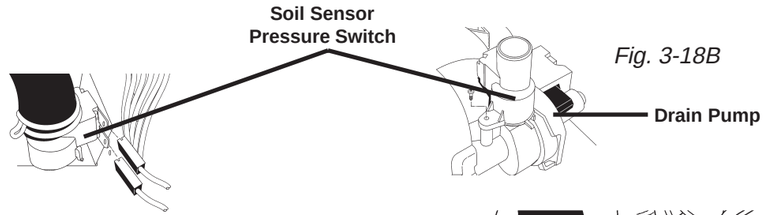

Fig. 3-18A

Fig. 3-18B

Removing the Drain Pump Motor

1. With one hand, press back on the plastic tab that holds the pump motor from rotating. *(Fig. 3-19)*
2. With the other hand, rotate the pump motor counterclockwise approximately ¼ turn. The pump motor will now be free of the pump assembly.

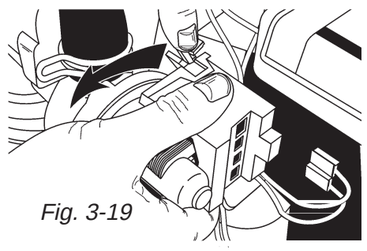

Fig. 3-19

SECTION FOUR
TROUBLESHOOTING AND DIAGNOSIS

TROUBLESHOOTING CHART

PROBLEM	POSSIBLE CAUSES	CORRECTION/TEST
Dishwasher does not run or stops during a cycle	1. Door is not latching properly. 2. Child lock is "ON". 3. Wash Cycle not set properly. 4. Household fuse blown or circuit breaker tripped. 5. Dishwasher is not wired into a circuit with proper voltage.	1. Check to make sure handle is properly seated in door latch assembly. Check that the door switch is opening and closing properly. 2. Turn child lock "OFF". See Use and Care Guide. 3. Review setting Wash Cycles in the Use and Care Guide. 4. Have a qualified electrician check the circuit breaker or fuse. 5. Have customer call a qualified electrician.
Dishwasher will not fill	1. Overflow protection float is stuck in "up" position. 2. Fill valve is inoperable. 3. Control board is inoperable.	1. Check that the overflow protection float is free to move "up" and "down" Check that the overfill switch in opening and closing properly. 2. Check for continuity between contacts on fill valve. 3. Check for 120VAC between P8 and P2-3.
Dishwasher will not drain	1. Air gap (if installed) is clogged. 2. Pump motor is inoperable 3. Control board is inoperable.	1. Follow air gap manufacturer's directions for cleaning. 2. Disconnect pump motor from wiring harness and check for continuity between GY & BU/BK. 3. Check for 120VAC between P8 and P3.
Dishwasher will not dry dishes	1. Heater element is open or shorted. 2. Hi-limit thermostat inoperable. 3. Active vent wax motor inoperable.	1. • Check for continuity between the terminals of the heater element. • Check for 120VAC between P8 and Neutral. 2. Check for continuity between terminals of the hi-limit thermostat. 3. • Check for continuity between terminals of the wax motor. • Check for 120VAC between P8 and Neutral.

-- NOTES --

Removing the Wash Motor

1. Remove the bolt securing the wash motor and drip shield in place on the pump assembly. *(Fig. 3-20)*

2. Once the bolt and drip shield are removed, turn the wash motor counter-clockwise until it stops (approximately ¼ turn).

3. Pull the motor straight back from the sump assembly. Some effort may be necessary to dislodge the motor. The volute will remain attached to the motor. (See Figure 3-24, page 22)

NOTE: When reinstalling the wash motor and volute, do not pinch the volute seal between the volute and sump. Use a small amount of rinse aid on the volute seal to help installation. *(Fig. 3-24, page 22)*

4. With the wash motor removed, the separation screen can be removed from the sump base. *(Fig. 3-21)*

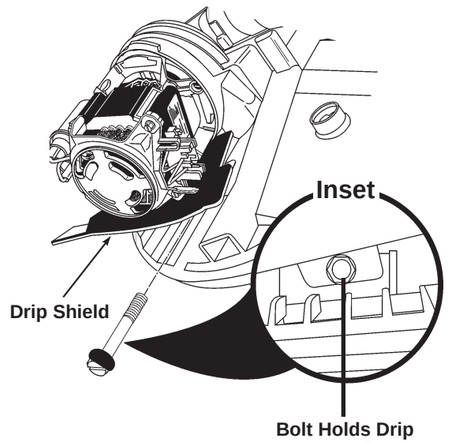

Fig. 3-20

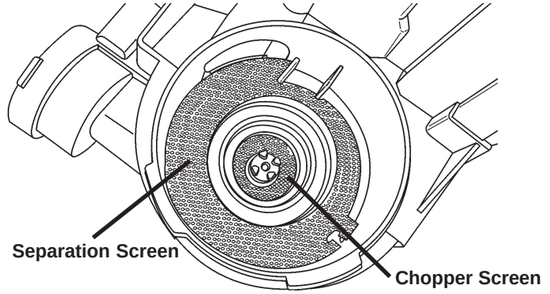

Fig. 3-21

5. The thermistor can be removed from the sump by turning it ¼ turn counterclockwise and pulling it out. *(Fig. 3-22)* The thermistor can be removed without removing the sump assembly from the tub. **NOTE:** Make sure water is completely drained from sump.

   Access to the thermistor can be gained by removing the access and toe panels while the unit is in its installed position.

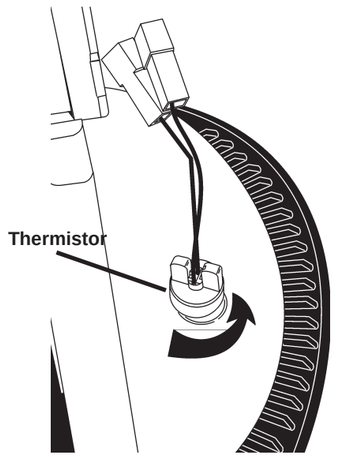

Fig. 3-22

Removing the Impeller from the Wash Motor

The impeller is attached to the wash motor and can be removed once the wash motor is removed from the pump base.

Do not touch seal surfaces on the impeller or the volute. Contamination or damage will cause premature failure.

1. Place the end of a flat-bladed screwdriver into the back of the wash motor to hold the armature of the motor from turning while unscrewing the impeller clockwise. *(Fig. 3-23)* Take care not to scratch or nick the motor windings.

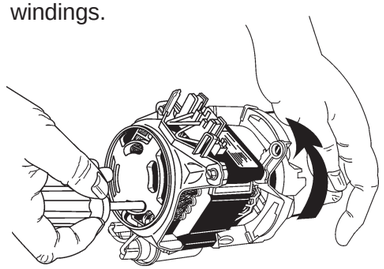

Fig. 3-23

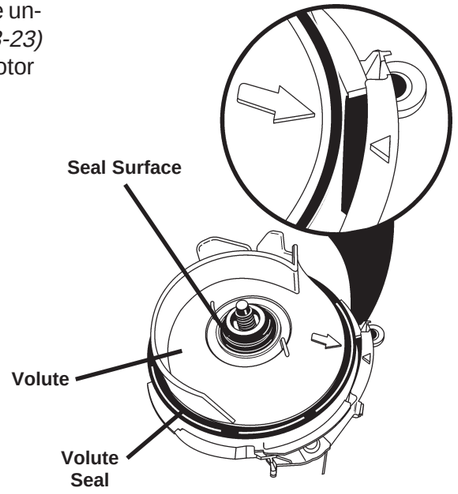

Fig. 3-24

To Remove the Volute

1. Align the arrow on the volute and the locator triangle on the wash motor frame as in Figure 3-24.
2. Lift the volute from the wash motor.

Accessing Components in the Sump Assembly

Components inside the sump can be accessed without removing the sump from the dishwasher tub.

1. Remove the four (4) Torx T-20 screws securing the soil accumulator from the sump base. *(Fig. 3-25)*
2. The soil accumulator assembly will now lift free of the sump base. *(Fig. 3-26)*

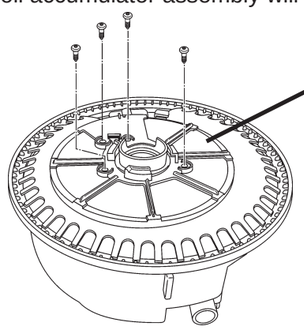

Fig. 3-25

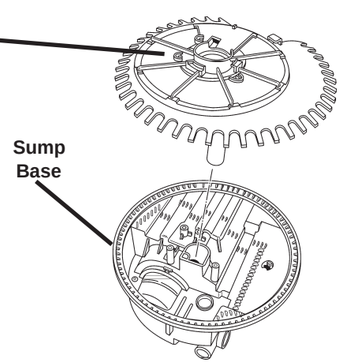

Fig. 3-26

3. Remove the screw securing the foreign object protector to the sump base and remove the protector. *(Fig. 3-27)*

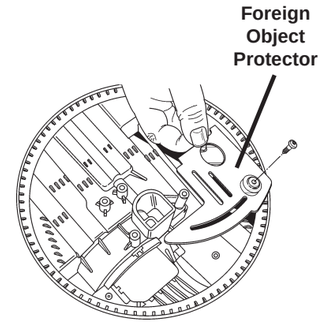

Fig. 3-27

4. Remove the screw securing the inlet protector to the sump base and lift the inlet protector out. *(Fig. 3-28)*
5. Remove the chopper assembly from the impeller shaft and lift it from the sump base. *(Fig. 3-29)*

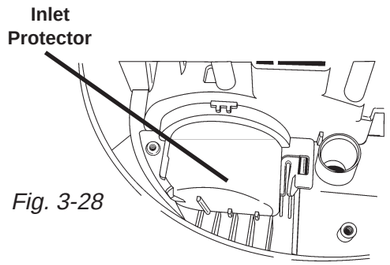

Fig. 3-28

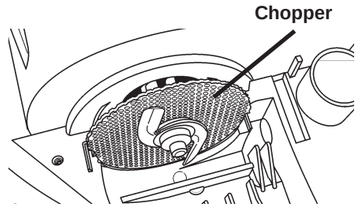

Fig. 3-29

6. The check valve, located between the wash motor and the drain can be removed with a pair of needle nose pliers. *(Fig. 3-30)*

NOTE: When replacing the check valve, simply drop it in place. The inlet protector will seat the flapper valve properly when it is reinstalled.

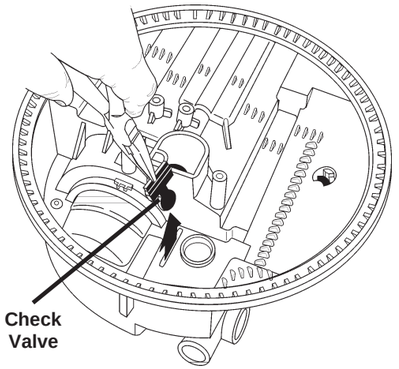

Fig. 3-30